

What is claimed is:

1. A moving image processing device,
comprising:

5 information collecting means for collecting first
information about a motion vector for each frame from
moving image data which is compressed with inter-frame
prediction encoding, and for also collecting second
information about a correlation with a
10 preceding/succeeding frame without decoding an image
for each frame;

evaluation function calculating means for
calculating a value of an evaluation function which
includes the first and the second information collected
15 by said information collecting means as parameters; and

scene change determining means for determining a
scene change by making a comparison between the value
of the evaluation function, which is calculated by said
evaluation function calculating means, and a threshold
20 value.

2. The moving image processing device
according to claim 1, wherein:

said information collecting means collects a
25 scene change interval; and

said evaluation function calculating means calculates the value of the evaluation function which includes the first and the second information, and the scene change interval as parameters.

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3. The moving image processing device according to claim 2, further comprising

scene change information storing means for storing the first and the second information, and the
10 scene change interval as scene change information.

4. The moving image processing device according to claim 3, wherein

said evaluation function calculating means
15 calculates the value of the evaluation function by using the scene change information read from said scene change information storing means; and

said scene change determining means determines a scene change by making a comparison between the
20 calculated value of the evaluation function and a threshold value.

5. The moving image processing device according to claim 1, wherein

25 said information collecting means collects the

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first information about a motion vector for each frame from first header information, which is added in units of frames of the compressed moving image data, and second header information, which is added in units of constituent elements of the frame, without decoding an image of the frame.

6. The moving image processing device according to claim 1, wherein

10 said information collecting means collects the second information about a correlation with a frame preceding/succeeding each frame from first header information, which is added in units of frames of the compressed moving image data, and second header
15 information, which is added in units of constituent elements of the frame, without decoding an image of the frame.

7. The moving image processing device
20 according to claim 1, wherein

the evaluation function is a function into which parameters are linearly combined with coefficients that are respectively assigned to the parameters.

25 8. The moving image processing device

FOOTNOTES

said information collecting means collects the number of bidirectionally predicted regions having both a forward prediction motion vector and a backward prediction motion vector for each frame, and outputs the first and the second information to said evaluation function calculating means as parameters only for a frame within a frame group which satisfies a condition that the numbers of bidirectionally predicted regions in consecutive frames are small.

said information collecting means outputs the
15 number of bidirectionally predicted regions having both
a forward prediction motion vector and a backward
prediction motion vector in each frame within a frame
group to said evaluation function calculating means as
a parameter of the evaluation function.

said information collecting means collects an appearance interval of a frame that becomes a scene change within a frame group which satisfies a condition

that the number of bidirectionally predicted regions in consecutive frames are small, and outputs the appearance interval of the frame to said evaluation function calculating means as a parameter of the evaluation function.

11. The moving image processing device according to claim 10, further comprising scene change information storing means for storing, as scene change information, the first and the second information of a frame within a frame group which satisfies a condition that the number of bidirectionally predicted regions in consecutive frames are small, and the appearance interval of the frame which becomes a scene change.

12. The moving image processing device according to claim 11, wherein:
said evaluation function calculating means calculates the value of the evaluation function by using the scene change information read from said scene change information storing means; and
said scene change determining means determines a scene change by making a comparison between the calculated value of the evaluation function and a

threshold value.

13. The moving image processing device according to claim 1, wherein

5 the first information is the number and magnitudes of motion vectors, whereas the second information is a square measure of a region having a low correlation with a preceding/succeeding frame.

10 14. The moving image processing device according to claim 1, wherein

the evaluation function is a function whose parameters are determined according to an appearance cycle of an intra-frame encoded frame or a forward
15 predicted frame in the encoded moving image data.

15. A moving image processing method, comprising the steps of:

(a) collecting first information about a motion
20 vector for each frame from moving image data which is compressed with inter-frame prediction encoding;

(b) collecting second information about a correlation with a preceding/succeeding frame without decoding an image of each frame;

25 (c) calculating a value of an evaluation

function which includes the first and the second information as parameters; and

(d) determining a scene change by making a comparison between the calculated value of the evaluation function and a threshold value.

16. The moving image processing method according to claim 15, further comprising the step of

(e) collecting a scene change interval,
10 wherein
the evaluation function which includes the scene change interval as a parameter is calculated in the step (c).

15 17. The moving image processing method according to claim 15, wherein

the first information about a motion vector for each frame is collected from first header information, which is added in units of frames of the compressed
20 moving image data, and second header information, which is added in units of constituent elements of the frame, without decoding an image of the frame in the step (a).

18. The moving image processing method
25 according to claim 15, wherein

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the second information about a correlation with a frame preceding/succeeding each frame is collected from first header information, which is added in units of frames of the compressed moving image data, and second
5 header information, which is added in units of constituent elements of the frame, without decoding an image of the frame in the step (b).

19. The moving image processing method
10 according to claim 15, further comprising the step of

(e) collecting the number of bidirectionally predicted regions having both a forward prediction motion vector and a backward prediction motion vector, wherein

15 the value of the evaluation function is calculated only for a frame within a frame group which satisfies a condition that the numbers of bidirectionally predicted regions in consecutive frames are small in the step (c).

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20. The moving image processing method according to claim 19, wherein

the evaluation function calculated in the step (c) includes, as a parameter, the number of bidirectionally
25 predicted regions having both a forward prediction

motion vector and a backward prediction motion vector in each frame within the frame group.

21. The moving image processing method
5 according to claim 19, further comprising the step of
collecting an appearance interval of a frame that
becomes a scene change within a frame group which
satisfies a condition that the numbers of
bidirectionally predicted regions in consecutive
10 frames are small, wherein

the evaluation function calculated in the step (c)
includes the appearance interval of the frame as a
parameter.

22. The moving image processing method
15 according to claim 15, wherein

the first information is the number and magnitudes
of motion vectors, whereas the second information is
a square measure of a region having a low correlation
20 with a preceding/succeeding frame.

23. A computer-readable storage medium on which
is recorded a program for causing a computer to execute
a process, said process comprising the steps of:

25 (a) collecting first information about a motion

vector for each frame from moving image data which is compressed with inter-frame prediction encoding;

(b) collecting second information about a correlation with a preceding/succeeding frame without
5 decoding an image for each frame;

(c) calculating a value of an evaluation function which includes the first and the second information as parameters; and

(d) determining a scene change by making a
10 comparison between the calculated value of the evaluation function and a threshold value.

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